

Remarks

The Applicants confirm the earlier election of Claims 16 – 27.

The Applicants have amended Claim 16 so that it is in more traditional US format and have also incorporated the subject matter of Claim 17. Claim 17 has accordingly been cancelled. Entry of the amendment and cancellation into the Official File is respectfully requested.

Claims 16, 17, 22, 23 and 24 stand rejected under 35 USC §102 as being anticipated by Seal.

The Applicants note with appreciation the Examiner's helpful comments with respect to individual ones of those rejected claims. The Applicants will not specifically address the comments concerning Claims 16, 22, 23 and 24 in view of the combination of the subject matter of Claim 17 into Claim 16.

The Applicants nonetheless respectfully submit that Seal fails to explicitly or implicitly disclose all of the subject matter recited in Claims 16, 22, 23 and 24. Reasons are set forth below.

Prior to addressing the differences of the subject matter of Claim 16 over Seal, the Applicants provide a few introductory comments as follows. The claimed subject matter solves problems in the conventional technology as described in the Applicants' Specification at page 5, line 13 to page 6, line 3 as follows:

In the above-described (conventional) method, when the resin injection is carried out at a so-called high Vf condition where the fiber volume content (Vf) of the reinforcing fiber substrate is 55% or more, namely, at a condition where a gap between reinforcing fibers is small, although the fiber volume content of a final molded product itself becomes high, the impregnation property of the resin into the molded product is poor... On the other hand, in a case where the Vf of the reinforcing fibers is, for example, 45% and the gap between reinforcing fibers is relatively great, because the fiber volume content of the final molded product becomes low although a good resin impregnation property can be obtained, only a product having poor strength and lightweight property can be obtained. Namely, the resin impregnation property and the fiber volume content Vf are in a relationship opposite to each other, and it is difficult to achieve both im-

provement of the resin impregnation property and increase of the fiber volume content together.

This is achieved by employing the concrete means defined in amended Claim 16 and as described in the Applicants' Specification at page 17, lines 1 – 7 as follows:

To form said reinforcing fiber substrate as a preform having a fiber volume content, which is a rate of a volume of reinforcing fibers relative to a bulk volume of said reinforcing fiber substrate, lower than said target fiber volume content, an advantage can be obtained wherein the porosity is high, the resin is impregnated sufficiently over the entire area of the reinforcing fiber substrate, and at that time, generation of resin non-impregnated portions can be prevented. After this resin impregnation, the resin injection is stopped, and thereafter, by the time when the resin is cured, the evacuation of resin is continued until reaching the target fiber volume content, and excessive resin is evacuated from the inside of the reinforcing fiber substrate, thereby achieving a target high Vf of the molded material.

Seal discloses "a preform is placed into a mold" (Column 3, lines 1 – 2). "Excess resin is initially vented out the vacuum attachment in the center portion of the apparatus and contained in a resin trap" (Column 4, line 68 to Column 5, line 3), etc. Although there is a disclosure with respect to suction of excess resin after complete impregnation of resin, Seal does not disclose, teach or suggest to one skilled in the art "to form said reinforcing fiber substrate as a preform having a fiber volume content, which is a rate of a volume of reinforcing fibers relative to a bulk volume of said reinforcing fiber substrate, lower than said target fiber volume content" as claimed by the Applicants.

Specifically, Seal merely discloses suction of excess resin in the preform after completion of resin injection relative to the preform which has inevitably been swelled by the resin injection and is sharply different from the concept of "using a preform whose fiber volume content is lower than the target fiber volume content" before resin injection as claimed by the Applicants.

Therefore, even if one skilled in the art looks to Seal in consideration of other prior art, Seal would not lead to the Applicants' claimed "using a preform whose fiber volume content is lower

than the target fiber volume content.” Thus, the Applicants respectfully submit that Seal fails to explicitly or implicitly disclose all of the subject matter of Claim 16. Withdrawal of the rejection on this basis alone is respectfully requested.

However, there is an additional point that needs to be addressed with respect to the specific comments set forth in the rejection. The rejection states in paragraph 6 of the Official Action that the definition of Claim 17 is only a definition of a property and it does not define a claimed range of that property. The Applicants’ Specification at page 15, line 25 to page 16, line 4 states:

As the reinforcing fiber substrate, a woven fabric preformed at an arbitrary fiber volume content within a range lower than the target fiber volume content, or a laminate can be used. The laminate may be formed by laminating layers of reinforcing fibers by an arbitrary number, and a structure, where reinforcing fiber layers are bonded to each other, is more preferable because a stability is given to the fiber volume content.

Thus, amended Claim 16 (now including Claim 17) defines a concrete structural component in that “the used reinforcing fiber substrate is formed with a preform whose fiber volume content is lower than the target fiber volume content. This defines an amount of fiber volume content which is not only a definition of a property.

This structural definition of concrete subject matter not only provides structural definition to Claim 16, it additionally defines Claim 16 over Seal. Withdrawal of the rejection based on Seal is respectfully requested.

Claim 19 stands rejected under 35 USC §103 over the hypothetical combination of Mizukami with Seal. The Applicants note with appreciation the Examiner’s helpful comments with respect to that combination. The Applicants nonetheless respectfully submit that Mizukami fails to cure the deficiencies set forth above with respect to Seal. Thus, even if one skilled in the art were to combine

Mizukami with Seal as set forth in the rejection, the result would still be a method that is different from the subject matter of Claim 19. Withdrawal of the rejection is respectfully requested.

Claims 20 and 21 stand rejected under 35 USC §103 over Seal. The Applicants have already established that Seal is inapplicable to independent Claim 16. The additional subject matter recited in Claims 20 and 21, even if taught or suggested by Seal, still does not cure the original deficiencies of Seal with respect to Claim 16. Therefore, the Applicants respectfully submit that Seal is inapplicable to Claims 20 and 21 as well.

Claims 25, 26 and 27 stand rejected under 35 USC §103 over the combination of Kimura with Seal. The Applicants respectfully submit that the disclosure of Kimura does not cure the deficiencies set forth above with respect to Seal. Therefore, even if one skilled in the art were to hypothetically combine Kimura with Seal, the result of that combination would still be a methodology that is different from the subject matter as recited in independent Claim 16. Withdrawal of the rejection of Claims 25, 26 and 27 is respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,


T. Daniel Christenbury
Reg. No. 31,750
Attorney for Applicants

TDC/lh
(215) 656-3381